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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/531,311	04/13/2005	Jacques Martinerie	270430US2PCT	6340

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EXAMINER
JANG, CHRISTIAN YONGKYUN

ART UNIT	PAPER NUMBER
3735	

NOTIFICATION DATE	DELIVERY MODE
01/23/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/531,311	MARTINERIE ET AL.	
	Examiner	Art Unit	
	CHRISTIAN Y. JANG	3735	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 April 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *19-36* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *19-36* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *13 April 2005* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *4/13/05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This Office Action is responsive to the Preliminary Amendment filed on April 13, 2005. Claims 19-36 are pending in the instant application.

Priority

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

3. The IDS submitted on April 13, 2005 has been considered in full by the examiner.

Drawings

4. New corrected drawings in compliance with 37 CFR 1.121(d) are required in this application because of reasons indicated on form PTO-948 by the draftsperson. Applicant is advised to employ the services of a competent patent draftsperson outside the Office, as the U.S. Patent and Trademark Office no longer prepares new drawings. The corrected drawings are required in reply to the Office action to avoid abandonment of the application. The requirement for corrected drawings will not be held in abeyance.

Specification

5. The disclosure is objected to because of the following informalities:

"PSC method" found at page 11, lines 25-26 of the specification is believed to be --MSC method--.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 19, 20, 24, 25, 27-30, and 34 are rejected under 35 U.S.C. 102(e) as being anticipated by Suffin (US 2004/0059241).

8. Hereinafter the phrases “method” and “device” will be used interchangeably.

9. As to claims 19 and 29, Suffin teaches a method for analyzing synchronizations of electroencephalography of an individual using a set of sensors starting from cerebral electromagnetic analysis of the individual ([0001]), comprising, creating a database comprising the acquisition and digitization of electrophysiological signals output from the sensors ([0010]), calculating a degree of synchronization existing between all pairs of sensors recorded in an assembly protocol ([0062]) in frequency bands between 0 and 2000Hz ([0062]), to build up the database of classes each characterizing a reference state ([0124-0126]), statistical validation of a period analyzed in real time ([0069]), which assigns the period to a class in the database ([0117]) and detecting a specific period with a determined degree of synchronization ([0087], [0153]) and sending an alert signal if applicable ([0115]).

10. As to claims 20 and 30, Suffin teaches a method comprising an analysis associated with at least one type of electrophysiological signals among electrocardiograms, electrooculograms, electrodermograms, and breathing signals ([0179]).

11. As to claim 24, Suffin teaches the application of the method to be used in real time medical or cognitive monitoring (claim 36).

12. As to claim 25, Suffin teaches the application of the method for characterizing and differentiating physiological or pathological states ([0087]).

13. As to claims 27, Suffin teaches the application of the method for diagnosis assistance in early stage of Parkinson's and Alzheimer's diseases ([0087]).

14. As to claim 28, Suffin teaches the application of the method for diagnosis assistance of schizophrenia and depression ([0087]).

15. As to claim 34, Suffin teaches circuits for acquisition of signals representing electrical activity of the brain ([0001]), a processor configured for acquisition and processing of the signals ([0065]), and an alert circuit for the patient or for his/her environment ([0019]).

Claim Rejections - 35 USC § 103

16. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

17. Claims 21-23, 26, and 31-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suffin (US 2004/0059241) in view of Le Van Quyen et al. ("Comparison of Hilbert Transform and Wavelet Methods for the Analysis of Neural Synchrony).

18. As to claims 21 and 31, Suffin fails to teach the use of a PLS method for statistical validation. However, Le Van Quyen discusses the quantification of phase synchrony between neuronal signals based on a PLS method (p85-86). As such, it would have been obvious to one of ordinary skill in the art to modify the EEG synchronization analysis taught by Suffin with the use of a PLS method as taught by Le Van Quyen to allow for the detection of synchronization at different spatial scales for higher accuracy in patient diagnosis.

19. As to claims 22 and 32, Le Van Quyen, by teaching PLS, inherently teaches the use of circular variance of the phase difference between the signals as the phase-locking index used in PLS is estimated using the circular variance.

20. As to claims 23 and 33, Le Van Quyen teaches the use of a normalized Shannon entropy of the phase difference between the signals to evaluate the statistical level of PLS synchronization (p86).

21. As to claim 26, Suffin fails to teach the application of the method to anticipating occurrence of epileptic seizures. However, Le Van Quyen teaches that epilepsy, along with such diseases as Parkinson's, manifest as a pathological form of the synchronization process and is thus detectable using this method (p84). As such, it would have been obvious to one of ordinary skill in the art to modify the EEG

synchronization analysis taught by Suffin with the use of a synchronization method to detect epileptic seizures as taught by Le Van Quyen for diagnostic purposes.

22. Claim 35 is rejected under 35 U.S.C. 103(a) as being unpatentable over Suffin (US 2004/0059241) in view of Manoli et al. (US 2001/0044573).

23. As to claim 35, Suffin fails to teach a device that the individual can carry himself or herself. However, Manoli teaches an electrode assembly that is worn like a hat and transmits information wirelessly ([0007], [0032]) which can be easily carried by the individual. As such, it would have been obvious to one of ordinary skill in the art to modify the EEG synchronization analysis taught by Suffin with a portably worn EEG acquisition device taught by Manoli so that device can be easily transported by the user.

24. Claim 36 is rejected under 35 U.S.C. 103(a) as being unpatentable over Suffin (US 2004/0059241) in view of Pless et al. (US 2003/0004428).

25. As to claim 36, Suffin fails to teach a device miniaturized to be implanted subcutaneously. However, Pless teaches an implantable EEG device that is implanted into the patient's scalp (Fig. 2). As such, it would have been obvious to one of ordinary skill in the art to modify the EEG synchronization analysis taught by Suffin with an implanted EEG acquisition device taught by Pless to allow for constant monitoring with little disruption to the user.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CHRISTIAN Y. JANG whose telephone number is (571)270-3820. The examiner can normally be reached on Mon. - Fri. (8AM-5PM) EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles Marmor II can be reached on 571-272-4730. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Charles A. Marmor, II/
Supervisory Patent Examiner
Art Unit 3735

CJ
/C. Y. J./
Examiner, Art Unit 3735
1/13/09